

STAR-LITE 2007: NOAA Ship *David Starr Jordan*
Weekly Science Report

Eric Archer, Cruise Leader
18 November 2007

Science Summary: 11-17 November 2007

Week 2 of this leg has us completing a majority of the eastern diamond in absolutely excellent weather. The most we've had to complain about was a few minutes of scattered rain on Sunday and Monday. Mammal and seabird surveys, oceanography, and acoustic operations have been proceeding normally and all onboard are looking forward to wrapping up the cruise and beginning our journey home.

Marine mammal sightings for this week have been plentiful, especially as we neared the end of the week and the top two transects of the eastern diamond. Aside from our standard spotted/spinner schools, we've been treated to several sightings of Risso's dolphin (*Grampus griseus*), rough-toothed dolphins (*Steno bredanensis*), and a very close approach to a group of pygmy killer whales (*Feresa attenuata*). While not being overly evasive like the smaller delphinids, these species have nonetheless managed to stay just out of reach of our biopsy team.

On Monday, we put some good karma in the bank by launching the small boat to rescue a female olive ridley turtle from some netting. From the look of the well-healed stub of a left rear flipper, this might not have been its first encounter with a net. However, observers Suzanne Yin and Juan Carlos Salinas set it free with

stern instructions to avoid them in the future. Saturday ended our week in grand style with a close approach by a blue whale (*Balaenoptera musculus*). As luck seems to have it, we were in passing mode that day and were unable to do more than take some quick photos as we steamed by.

Congratulations and thanks to Sophie Webb and Kevin Lackey for providing us with two beautiful wahoo caught from the fantail, as well as the Steward Department for putting it on our plates in tasty style. The satisfied thuds of belly-patting were heard throughout the ship.



Olive ridley turtle entangled in netting was rescued, the netting cut off, and then safely returned to sea.

Sightings and Effort Summary for Marine Mammals (*Richard Rowlett, Juan Carlos Salinas, Suzanne Yin, Ernesto Vázquez, Adam Ü, and Dawn Breese*)

Date	Start/ Stop Time	Position	Total nm	Average Beaufort	Mode of Operations
111107	0719	N13:43.65 W105:20.62	92.8	3.1	Passing
	1715	N12:22.74 W104:26.33			
111207	0702	N13:43.38 W105:20.69	61.2	4.0	Closing
	1701	N12:38.88 W104:42.36			
111307	0706	N12:27.89 W104:30.16	95.5	4.0	Passing
	1714	N13:51.49 W103:34.00			
111407	0650	N12:28.05 W104:29.72	77.2	3.7	Closing
	1714	N13:42.12 W103:40.31			
111507	0702	N13:43.92 W103:38.96	101.2	3.6	Passing
	1710	N15:08.75 W104:35.88			
111607	0648	N13:43.81 W103:38.82	69.7	2.3	Closing
	1719	N14:58.41 W104:30.98			
111707	0707	N14:59.81 W104:30.15	99.9	1.9	Passing
	1715	N13:36.01 W105:26.17			

Code	Species	Number of Sightings
001	<i>Mesoplodon peruvianus</i>	2
002	<i>Stenella attenuata</i> (offshore)	20
003	<i>Stenella longirostris</i> (unid. subsp.)	1
010	<i>Stenella longirostris orientalis</i>	16
013	<i>Stenella coeruleoalba</i>	1
015	<i>Steno bredanensis</i>	4
017	<i>Delphinus delphis</i>	3
021	<i>Grampus griseus</i>	7
032	<i>Feresa attenuata</i>	1
048	<i>Kogia sima</i>	3
049	Ziphiid whale	2
051	<i>Mesoplodon</i> sp.	1
061	<i>Ziphius cavirostris</i>	4
075	<i>Balaenoptera musculus</i>	1
077	Unid. dolphin	5
096	Unid. cetacean	1
177	Unid. small delphinid	13
277	Unid. medium delphinid	4
Total		89

Photography (Adam Ü, Suzanne Yin, Juan Carlos Salinas, Sophie Webb)

It has been another eventful week for photographs. While we were only able to squeeze a few photos each out of one sighting of spotters and two of spinners, we took up the slack on less commonly seen animals: *Steno* and *Grampus*. However, the ultimate score of the week was having a blue whale come within range of our lenses on a passing mode day, which gave us the first photographs of a baleen whale for the cruise.



A group of Risso's dolphins (*Grampus griseus*) observed on STAR-LITE. Photo: Adam Ü.

Species	Common Name	Weekly photographs		Total photographs	
		Individuals	Schools	Individuals	Schools
<i>Stenella attenuata</i> (offshore)	Offshore pantropical spotted dolphin	1	19	18	445
<i>Stenella longirostris</i> <i>orientalis</i>	Eastern spinner dolphin	2	18	7	176
<i>Stenella coeruleoalba</i>	Striped dolphin			2	20
<i>Steno bredanensis</i>	Rough-toothed dolphin	1	93	2	106
<i>Tursiops truncatus</i>	Bottlenose dolphin			3	76
<i>Grampus griseus</i>	Risso's dolphin	2	85	3	127
<i>Feresa attenuata</i>	Pygmy killer whale			6	327
<i>Pseudorca crassidens</i>	False killer whale			2	89
<i>Balaenoptera musculus</i>	Blue whale	1	9	1	9
Total		7	224	44	1,264

Biopsy (Juan Carlos Salinas, Ernesto Vásquez, and Suzanne Yin)

No biopsies were collected this week.

Species	Common Name	Weekly		Total	
		Samples	Takes	Samples	Takes
<i>Pseudorca crassidens</i>	False killer whale	0	0	3	11
<i>Stenella attenuata</i>	Pantropical spotted dolphin	0	0	5	19
<i>Tursiops truncatus</i>	Bottlenose dolphin	0	0	2	8
Total		0	0	10	38

Acoustic Squeaky Report (Eric Archer with assistance from Suzanne Yin and Sophie Webb)

The acoustic array was successfully deployed on all passing mode days.

Seabird Report (Michael Force and Sophie Webb)

Our primary theme this week is the continuing trend of relatively low abundance and high diversity apparent the last couple weeks. Working in the same small oceanic area over a long period of time provides the unique opportunity of witnessing seasonal changes in avian diversity and abundance as summer progresses into fall. Most notable has been the change in species composition of feeding flocks over dolphins and fish. These dynamic flocks, formally consisting almost entirely of Juan Fernandez Petrels and dark morph Wedge-tailed Shearwaters, have now shifted to Sooty Terns and light morph Wedge-tailed Shearwaters. Seeing just one Sooty Tern during August and September was a noteworthy event; now it is probably the most common bird out here. Meanwhile, sightings of Juan Fernandez Petrels for the entire leg can be counted on one hand! Another species practically non-existent at the beginning of the season, Christmas Shearwater, is now showing up with some regularity, primarily in feeding flocks.

Displaced birds and other fall migrants, such as Least Tern, Merlin, Whimbrel and Laughing Gull, pushed our weekly species total to 30. Cattle Egrets lead the “lost and confused” brigade, including one settling down for a life of Riley on board thanks to Sophie’s feeding and watering efforts. However, life is tenuous under the watchful eye of the immature Peregrine Falcon, perched on the aft mast and eager for a change in diet from storm-petrels. Providing an incongruous splash of colour in a rather monochrome marine environment was a brilliant male Hooded Warbler, lurking under deck equipment for something to eat, fully aware that he himself is something to eat in the eyes of a hungry Peregrine.



Male Hooded Warbler (*Wilsonia citrina*) that landed on *McArthur II*. Photo: Sophie Webb

Oceanographic Operations (*Candice Hall and Ryan Driscoll with assistance from Siri Hakala, Heather Judkins and Lisa Schwarz*)

This week in oceanography has seen the final installment of our Yo-Yo protocols; plus a new team member has joined the fold. But first, the ocean: temperatures averaged 29°C this week, warming slightly from last week's average of 28.6°C. Salinity, meanwhile, dropped slightly to an average of 33.10psu.

Scientists and Deck crew showed their endurance during this week's all night Yo-Yo event. The CTD was dropped 12 times between our normal CTD stations in search of density-driven internal waves. We would like to thank the crew for staying up into the wee hours of night in pursuit of scientific data.

Last week's net tows held the largest volumes to date and this week continued that trend with even larger catches. The quart jars made their first appearance of the cruise to contain a bulging Manta tow on the 16th. We had some new visitors in addition to the high volumes. Several adult squid were ensnared by the Manta net and a Bongo tow brought up our first flat fish, looking quite confused. To help us out was Lisa Schwarz who joined the oceanography team. She is a welcome addition to our rotation of capable visiting scientists. Stay tuned for our final report next week.

Date	CTD	XBT	Surface Chlorophylls	Bongo tow	Manta tow
111107 ^{a,b}	2	5	4	1	1
111207	2	4	4	1	1
111307 ^a	2	4	4	1	1
111407 ^b	3	5	4	1	1
111507 ^{a,b,c}	4	5	4	1	1
111607	2	4	4	1	1
111707 ^a	2	4	4	1	1
Total	17	31	28	7	7

^a Second cod end fixed in Ethanol for M. Ohman, Scripps Institute of Oceanography.

^b Extra XBT drop to compare with CTD

^c Yo-Yo CTD night

Dipnet Report (*Juan Carlos Salinas, Ernesto Vázquez, Adam Ü, Ryan Driscoll, Sophie Webb and Heather Judkins*)

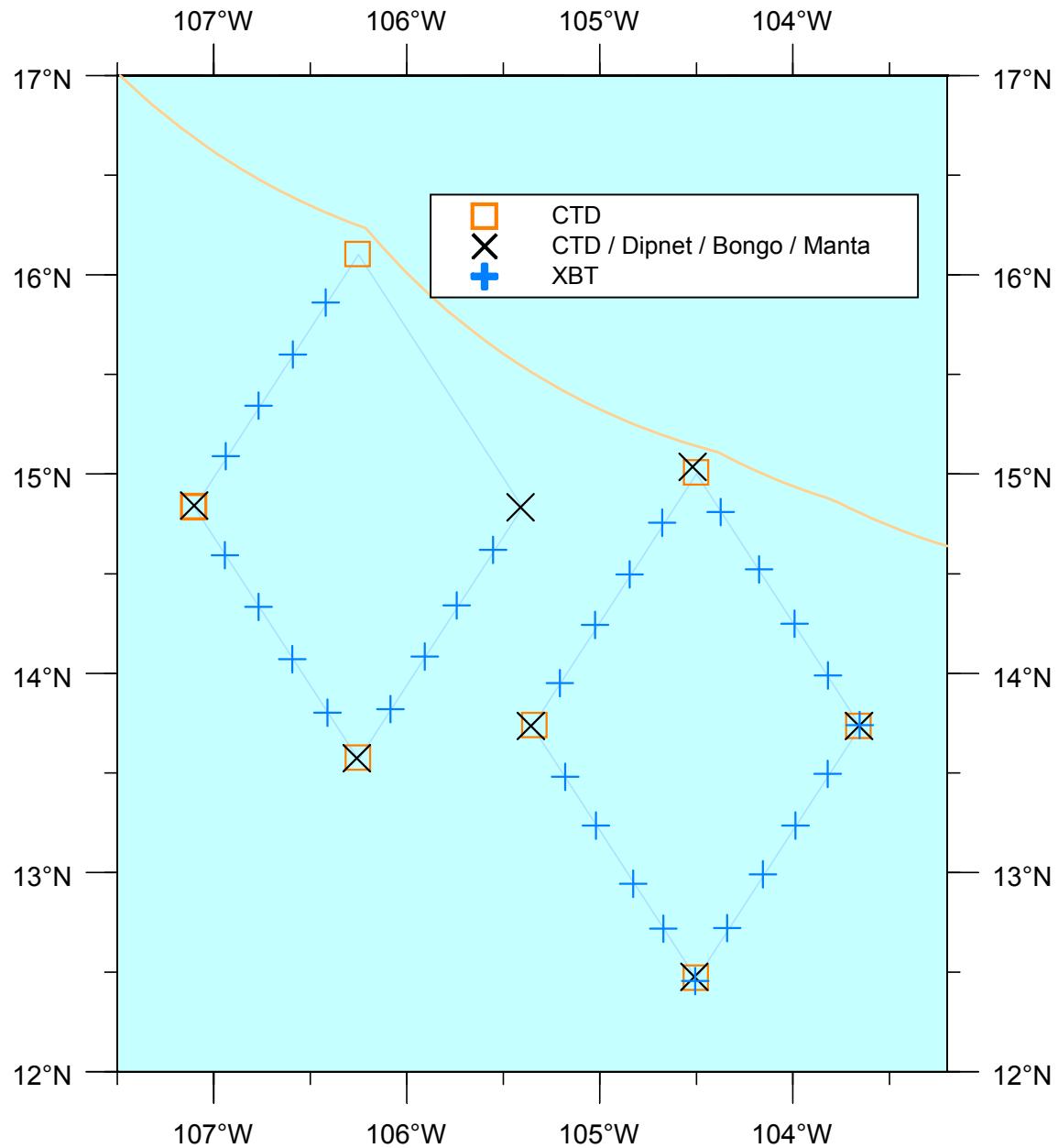
This is the second report for the last leg of STAR-LITE and it was another successful week. On the 11th, our first station for this report, it happened that we stopped on a super abundant patch of two-winged flyingfish (*Exocoetus* sp.) and short-winged flyingfish (*Oxyporhamphus* sp.), even Sophie caught a few flyers. The rest of the nights we have a very steady catches with abundant flyingfish.

Fish collected	Weekly total	Grand total
Two-winged flyingfish (<i>Exocoetus</i> sp.)	78	340
Four-winged flyingfish (<i>Cheilopogon, Hirundichthys, Prognichthys</i>)	18	174
Short-winged flyingfish (<i>Oxyporhamphus</i>)	29	150
Lantern fish (Myctophidae)	1	11
Unidentified fish	4	12
Total	130	687

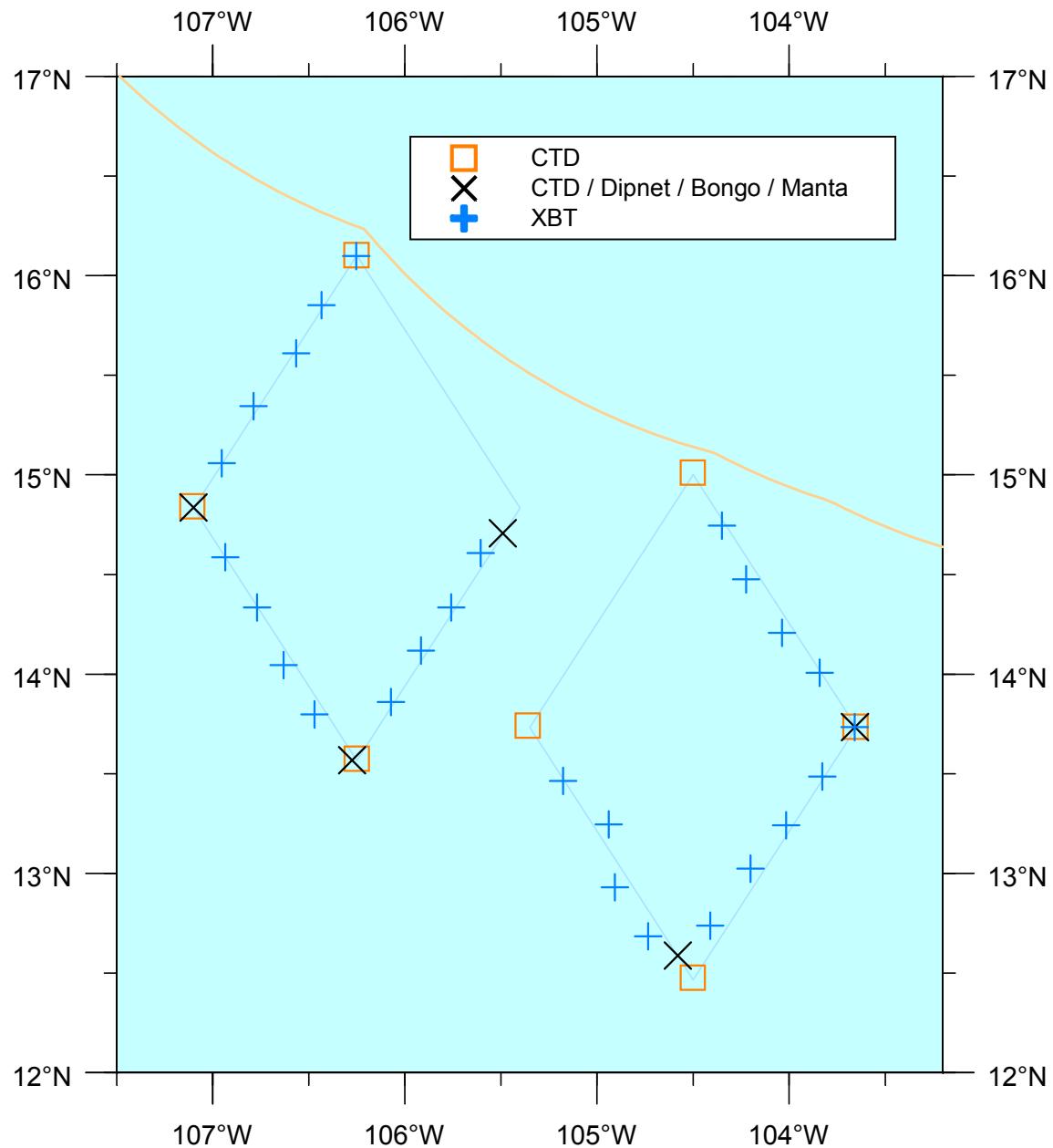
Stomach samples collected	Weekly total	Grand total

Stomach samples collected	Weekly total	Grand total
Two-winged flyingfish (<i>Exocoetus</i> sp.)	48	331
Four-winged flyingfish (<i>Cheilopogon, Hirundichthys, Prognichthys</i>)	11	113
Short-winged flyingfish (<i>Oxyporhamphus</i>)	6	35
Total	65	479

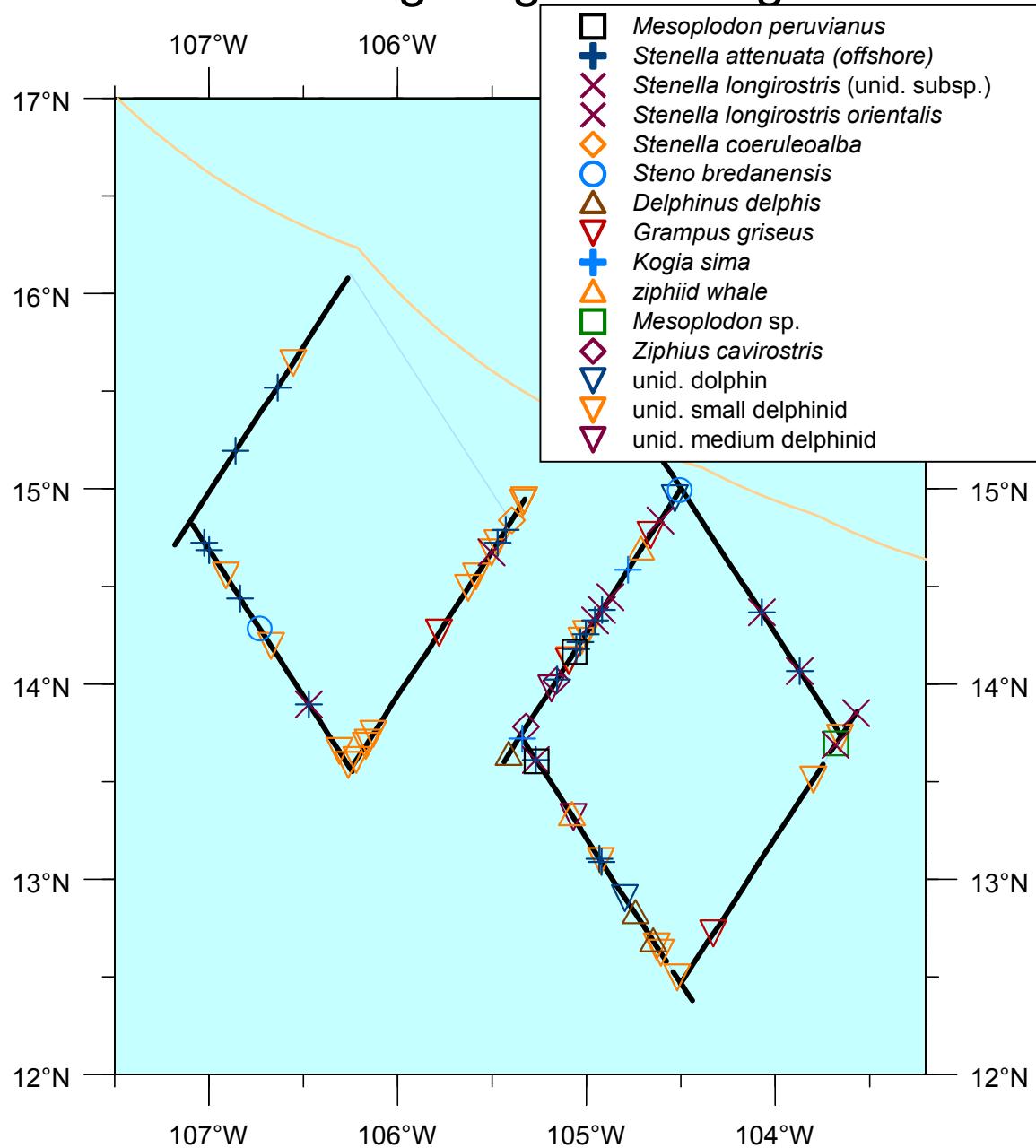
Oceanographic Sampling: Passing Mode



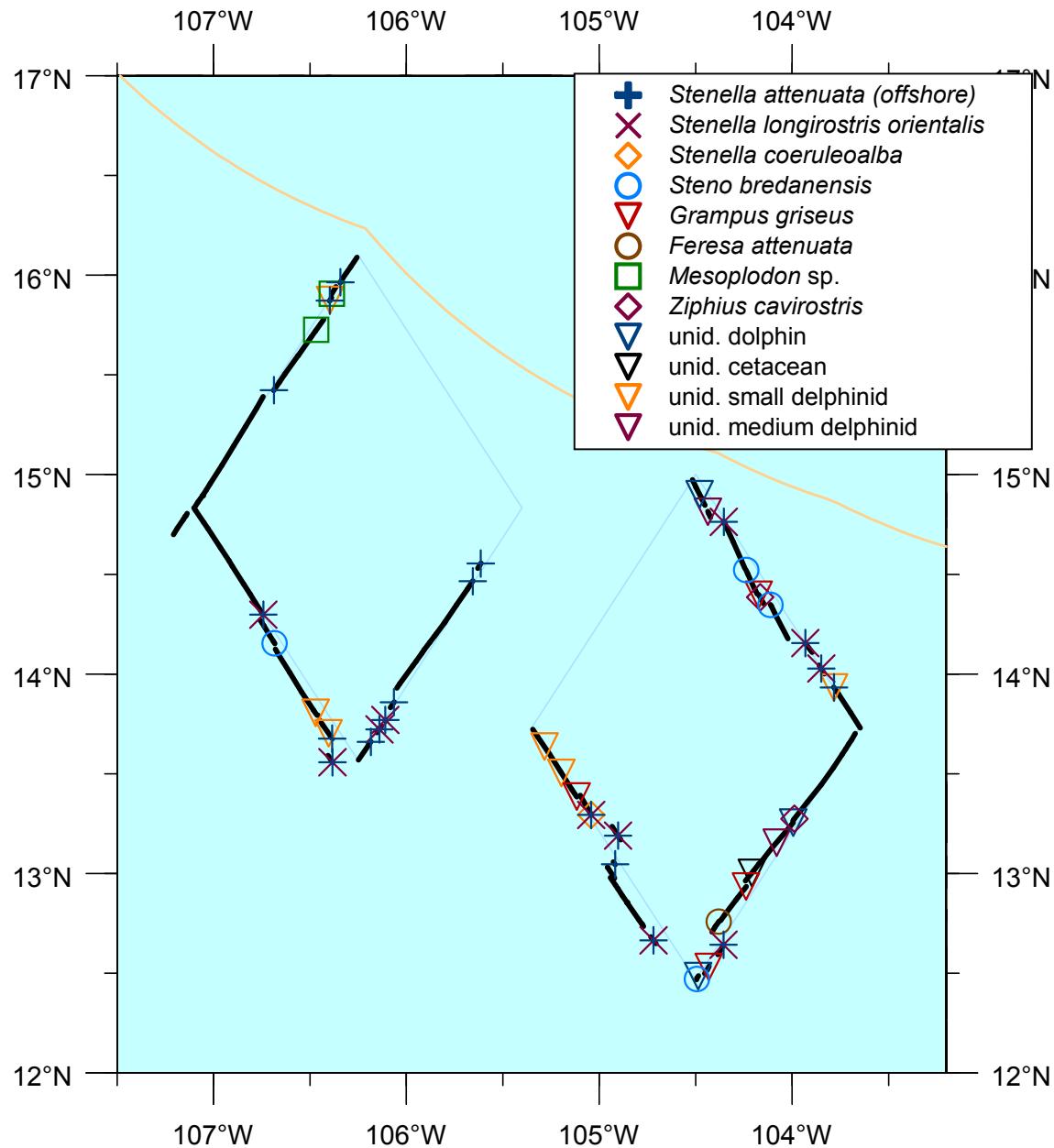
Oceanographic Sampling: Closing Mode



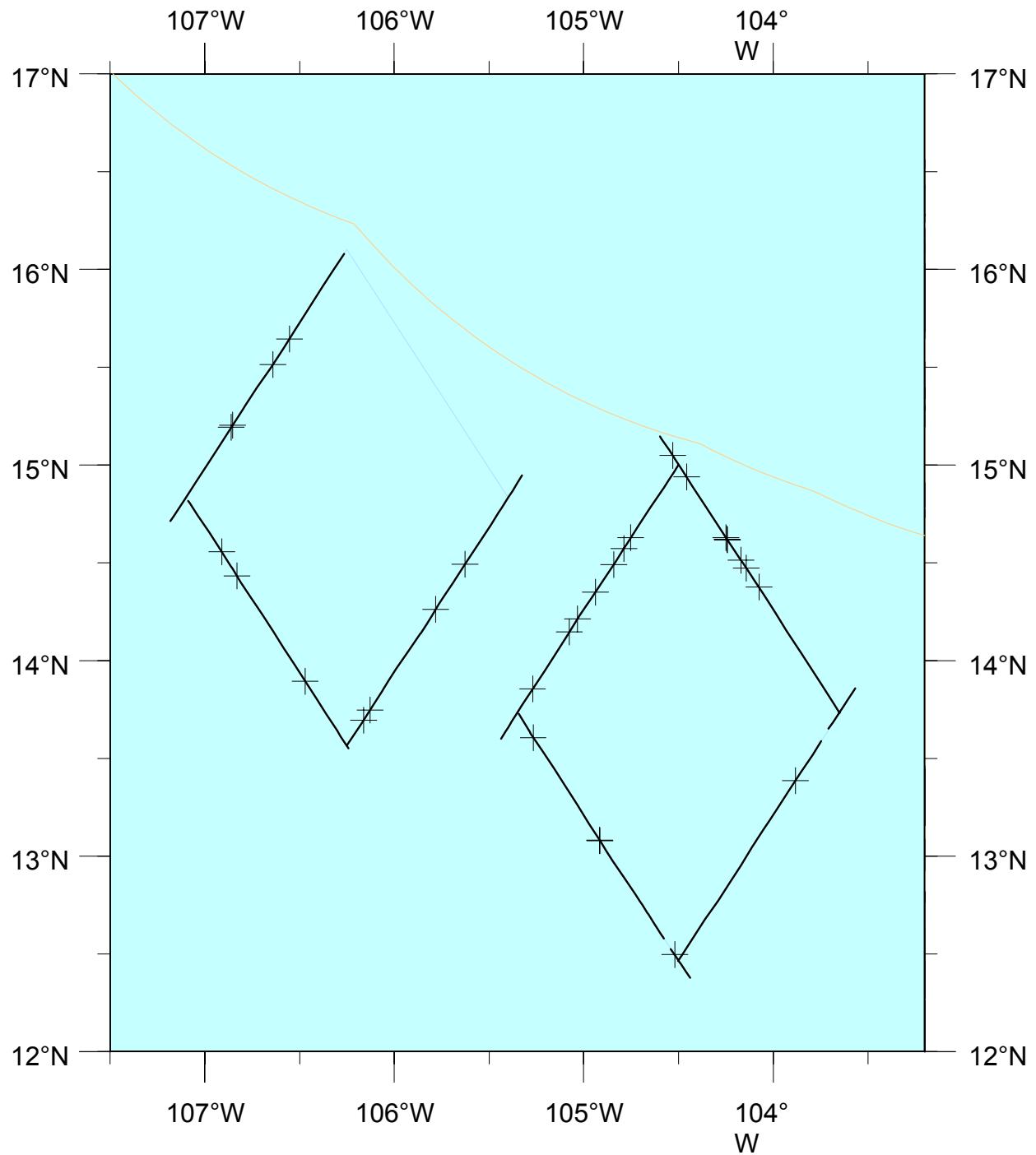
Cetacean Sightings: Passing Mode



Cetacean Sightings: Closing Mode



Seabird Flocks: Passing Mode



Seabird Flocks: Closing Mode

